

Application No. 10/099,885
Amendment dated September 14, 2006
Response to Office Action mailed June 15, 2006

Amendments to the Drawings:

Applicants have amended Figure 4 to change the foreign characters in item 54 to the word "TIMER." The attached sheet of replacement drawings, which has Figure 4 thereon, replaces the original sheet of drawings having Figure 4 thereon.

Attachment: One (1) sheet of replacement drawings with Figure 4 thereon.

REMARKS

Claims 1-28 are pending in this application.

Applicants have amended claims 1, 2, 4-17, and 20. In addition, Applicants have made minor changes to the specification and drawings to correct informalities. These changes do not introduce any new matter.

In response to the objection to the drawings, Applicants have amended Figure 4 to change the foreign characters in item 54 to the word “TIMER.” As set forth in the “Amendments to the Drawings” section of this paper, a replacement sheet of drawings having Figure 4 thereon is attached. Accordingly, Applicants respectfully request that the objection to the drawings be withdrawn.

In response to the objection to the specification, Applicants have corrected the informalities cited by the Examiner. In addition, Applicants have changed the reference number for the peripheral I/O portion (PIO) from 54 to 55 and have changed the reference number for the timer from 55 to 54 (these changes were made to conform the reference numbers to those shown in Figure 4). Accordingly, Applicants respectfully request that the objection to the specification be withdrawn.

Applicants respectfully request reconsideration of the rejection of claims 1-6, 8-12, 16-19, and 21-25 under 35 U.S.C. § 102(e) as being anticipated by *Roberts* (U.S. Patent No. US 6,758,574 B1). As will be explained in more detail below, the *Roberts* reference does not disclose each and every feature specified in independent claims 1, 8, 17, and 21, as presented herein.

Applicants have amended independent claims 1 and 8 to remove the “means” clauses from these claims. As amended herein, claim 1 specifies a color converter, an image processor, and a reproductive color number reducer. As amended herein, claim 8 specifies a first image processor, a tone number reduction preventer, and a second image processor.

The *Roberts* reference discloses a technique for optimizing conversions between color spaces. In particular, *Roberts* discloses a technique that involves 1) identifying the optimal color conversion functions that are tailored to the hardware that carries out the subject color conversions, and 2) combining multiple color conversion sequence lists so as to carry out desirable color conversions in the quickest color conversion sequence (passing on a device-independent color space). *Roberts*, however, does not disclose the concept of preserving the tone number and reproductive color number of image data before and after image processing conversion. In support of the rejection, the Examiner refers to the “controlled accuracy” mentioned in *Roberts* (see Office Action at page 3); however, the phrase “controlled accuracy” is not used in *Roberts* to refer to the improvement of color conversion accuracy, but rather is used to refer to restrictions imposed on color conversion accuracy by the hardware.

Regarding the subject matter specified in amended claim 1, *Roberts* provides no disclosure or suggestion of either the “color converter” or the “reproductive color number reproducer.” Applicants respectfully traverse the Examiner’s characterization of the *Roberts* reference relative to the subject matter specified in claim 1. In support of the rejection, the Examiner considers the RGB color space to be the same as the YCbCr color space, even though these color spaces have different color coordinate systems. Further, regarding the reproductive color number in a first color space and the reproductive color number in a second color space, the Examiner refers to two RGB color spaces belonging to the identical color coordinate system (the RGB color coordinate system), and takes the position that it is an inherent feature of the sRGB color space that one of the three components is at the minimum value or 255 and the other two values are at zero. Still further, the Examiner refers to the minimization of the size of the look-up tables (LUT) mentioned in *Roberts* and alleges that

this feature constitutes the disclosure of the reduction of the reproductive color number as in the claimed subject matter.

The “color converter” specified in claim 1 is capable of converting image data of a first color system in a first color coordinate system to image data of a second color system in a second color coordinate system that is different from the first color coordinate system, while preserving a first color number represented by the first color system. The *Roberts* reference does not disclose a “color converter” for at least the reason that the technique described therein does not carry out the functionality specified in claim 1. The “reproductive color number reducer” specified in claim 1 reduces the reproductive color number of the target image data, not the size of the LUT as described in the *Roberts* reference. Thus, for at least this reason, the *Roberts* reference does not disclose a “reproductive color number reducer.”

Accordingly, for at least the foregoing reasons, the *Roberts* reference does not disclose each and every feature of claim 1.

Considering next independent claim 8, the arguments set forth above regarding claim 1 are generally applicable to the subject matter specified in claim 8. In particular, in support of the rejection of claim 8, the Examiner alleges that the minimization of the size of the LUT mentioned in *Roberts* constitutes the disclosure of the “tone number reduction preventing means” specified in claim 8. The “tone number reduction preventer” specified in amended claim 8 prevents the reduction of the tone number of the image data accompanying modification of color value by the first image processing means, and does not involve reducing the size of the LUT as described in *Roberts*. Thus, *Roberts* does not disclose a “tone number reduction preventer” as specified in claim 8.

Accordingly, for at least the foregoing reasons, the *Roberts* reference does not disclose each and every feature of claim 8.

Turning to independent claim 17, this claim defines a computer-readable medium having an image processing program for performing image processing on image data, where the image processing program implements functionality similar to that specified in independent claim 1. For the same reasons set forth above in connection with claim 1, *Roberts* does not disclose an image processing program that implements the specified “function for converting” or “a function for reducing the reproductive color number of image data subjected to the image processing.”

Accordingly, for at least the foregoing reasons, the *Roberts* reference does not disclose each and every feature of claim 17.

Addressing now independent claim 21, this claim defines a computer-readable medium having an image processing program for performing image processing on image data, where the image processing program implements functionality similar to that specified in independent claim 8. For the same reasons set forth above in connection with claim 8, *Roberts* does not disclose an image processing program that implements “a function for preventing reduction of tone number of the image data accompanying modification of color value by the first image processing function.”

Accordingly, for at least the foregoing reasons, the *Roberts* reference does not disclose each and every feature of claim 21.

For at least the foregoing reasons, independent claims 1, 8, 17, and 21 are patentable under 35 U.S.C. § 102(e) over *Roberts*. Claims 2-6, each of which ultimately depends from claim 1, claims 9-12, each of which ultimately depends from claim 8, claim 16, which ultimately depends from one of claims 1 and 8, claims 18 and 19, each of which ultimately depends from claim 17, and claims 22-25, each of which ultimately depends from claim 21, are likewise patentable under 35 U.S.C. § 102(e) over *Roberts* for at least the same reasons set forth above regarding the applicable independent claim.

Applicants respectfully request reconsideration of the rejection of claims 7, 13-15, 20, and 26-28 under 35 U.S.C. § 103(a) as being unpatentable over *Roberts* in view of *Fushiki et al.* (U.S. Patent No. US 6,748,107 B1). The deficiencies of the *Roberts* reference relative to independent claim 1, from which claim 7 ultimately depends, are set forth above in connection with the anticipation rejection of claim 1. The *Fushiki et al.* reference does not cure the above-discussed deficiencies of the *Roberts* reference relative to claim 1. Accordingly, claim 7 is patentable under 35 U.S.C. § 103(a) over the combination of *Roberts* in view of *Fushiki et al.* for at least the same reasons set forth above regarding claim 1.

Independent claim 13 defines an image processing apparatus for image processing on image data. Applicants have amended claim 13 to remove the “means” clauses from this claim. As amended herein, the image processing apparatus includes “a first color space converter for increasing the tone number of the image data from a first tone number to a second tone number, as well as converting the color space of image data from the YCbCr color space to the sRGB color space.” Applicants respectfully traverse the Examiner’s characterization of the *Roberts* reference relative to the claimed subject matter. The technique described in the *Roberts* reference does not carry out the functionality specified for the claimed “first color space converter” (see the discussion of the *Roberts* reference set forth above in connection with the anticipation rejection). Further, the Examiner alleges that the minimization of the size of the LUT mentioned in *Roberts* constitutes the disclosure of the “tone number reducer” specified in claim 13. The “tone number reducer” specified in claim 13 restores the tone number of the color space-converted image data from the second tone number to the first tone number, and does not involve reducing the size of the LUT as described in *Roberts*. Thus, *Roberts* does not disclose a “tone number reducer” as specified in claim 13.

The *Fushiki et al.* reference is cited merely to show the use of a wRGB color space. As such, the *Fushiki et al.* reference does not cure the above-discussed deficiencies of the *Roberts* reference relative to claim 13. Accordingly, claim 13 is patentable under 35 U.S.C. § 103(a) over the combination of *Roberts* in view of *Fushiki et al.* Claims 14 and 15, each of which ultimately depends from claim 13, are likewise patentable under 35 U.S.C. § 103(a) over the combination of *Roberts* in view of *Fushiki et al.* for at least the same reasons set forth above regarding claim 13.

Considering next claim 20, this claim ultimately depends from independent claim 17. The *Fushiki et al.* reference does not cure the above-discussed deficiencies of *Roberts* relative to claim 17. Accordingly, claim 20 is patentable under 35 U.S.C. § 103(a) over the combination of *Roberts* in view of *Fushiki et al.* for at least the reason that this claim depends from claim 17.

Shifting to independent claim 26, this claim defines a computer-readable medium having an image processing program for performing image processing on image data, where the image processing program implements functionality similar to that specified in independent claim 13. For the same reasons set forth above in connection with claim 13, *Roberts* does not disclose an image processing program that implements either “a first color space converting function” or “a tone number reducing function” as specified in claim 26. The *Fushiki et al.* reference does not cure the deficiencies of the *Roberts* reference relative to claim 26. Accordingly, claim 26 is patentable under 35 U.S.C. § 103(a) over the combination of *Roberts* in view of *Fushiki et al.* Claims 27 and 28, each of which ultimately depends from claim 26, are likewise patentable under 35 U.S.C. § 103(a) over the combination of *Roberts* in view of *Fushiki et al.* for at least the same reasons set forth above regarding claim 26.

In view of the foregoing, Applicants respectfully request reconsideration and reexamination of claims 1-28, as presented herein, and submit that these claims are in

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condition for allowance. Accordingly, a notice of allowance is respectfully requested. In the event a telephone conversation would expedite the prosecution of this application, the Examiner may reach the undersigned at **(408) 749-6902**. If any additional fees are due in connection with the filing of this paper, then the Commissioner is authorized to charge such fees to Deposit Account No. 50-0805 (Order No. MIPFP010).

Respectfully submitted,
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